

Attorney Docket No.: ACY-33377
Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Metcalf et al.

Serial No.: 09/674,368
(entry into U.S. National Stage from
PCT/US99/09486)

Filed: April 29, 1999
(PCT filed January 29, 1998)

For: Vaccines Containing Recombinant Pilin
Against Neisseria Gonorrhoeae or Neisseria
Meningitidis

Group Art Unit: TBD

Examiner: TBD

Atty. Dkt. No.: ACY-33377

RESPONSE TO NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. § 371

Commissioner for Patents
Box PCT
U.S. Patent and Trademark
Office
P.O. Box 2327
Arlington, Va 22202

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this paper and the documents referred to as enclosed therein are being deposited with the United States Postal Service on the date written below in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number ET937267823US addressed to the Commissioner for Patents, Box PCT, U. S. Patent and Trademark Office, P.O. Box 2327, Arlington, VA 22202.

12/11/01

Date

Anand P. Iyer, Ph.D.

Sir:


In a "Notification of Missing Requirements under 35 U.S.C. §371", (the "Notification") mailed June 11, 2001, the Examiner stated that the Applicants had not submitted the required sequence listing pursuant to 37 C. F. R. §1.821 - §1.825. The Examiner also set a two-month time-period to comply with the Notification from the mailing date.

BEST AVAILABLE COPY

In response, Applicants submit herewith a substitute computer readable form of the Sequence Listing as required under 37 C.F.R. §1.821-§1.825, along with a copy of the Notification. Applicants also submit that the sequence information provided in the Specification is the same as the sequence listing of the enclosed substitute computer readable form of the sequence listing. The Applicants, in accordance with 37 C.F.R. §1.821(g), also attest that no new matter is included with this submission.

In addition, the Applicants have also submitted herewith a "Petition for Extension of Time", for four months extension with the authorization to charge the extension fees to Applicants' Deposit Account No. 01-1300. If any additional fee is required, the Patent Office is authorized to charge the Applicants' Deposit Account No. 01-1300.

Respectfully submitted,



Alan M. Gordon
Reg. No. 30,637
Attorney for Applicants

American Home Products Corp.
Five Giralda Farms
Madison, NJ 07940
(845) 602-2189

Date: 12/11/01

RECEIVED

CC: PEARL RIVER

JUN 18 2001



UNITED STATES PATENT AND TRADEMARK OFFICE

Anand P. Iyer
Patent Law Department
Pearl River, NYCommissioner for Patents, Box PCT
United States Patent and Trademark Office
Washington, D.C. 20231
www.uspto.gov

U.S. APPLICATION NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
09/674368	METCALF	T 33377-00

INTERNATIONAL APPLICATION NO.

PCT/US99/09486

ALAN M GORDON
PATENT LAW DEPARTMENT 2B
AMERICAN HOME PRODUCTS CORPORATION
ONE CAMPUS DRIVE
PARSIPPANY, NJ 07054

I.A. FILING DATE	PRIORITY DATE
------------------	---------------

29 APR 99

DATE MAILED: 11 JUN 2001

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

1. The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as ☐ a Designated Office (37 CFR 1.494) ☒ an Elected Office (37 CFR 1.495):

- | | |
|--|--|
| <input checked="" type="checkbox"/> U.S. Basic National Fee. | <input type="checkbox"/> Indication of Small Entity Status. |
| <input checked="" type="checkbox"/> Copy of the international application. | <input checked="" type="checkbox"/> Translation of the international application into English. |
| <input checked="" type="checkbox"/> Oath or Declaration of inventors(s). | <input type="checkbox"/> Translation of Article 19 amendments into English. |
| <input type="checkbox"/> Copy of Article 19 amendments. | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Priority Document. | |
| <input checked="" type="checkbox"/> The International Preliminary Examination Report in English and its Annexes, if any. | |
| <input type="checkbox"/> Translation of Annexes to the International Preliminary Examination Report into English. | |

2. ☐ Applicant has requested early processing under 35 U.S.C. 371(f) but has not filed the following indicated items and/or the indicated items in paragraph 3 below. The Basic National Fee and the copy of the international application must be filed prior to 20 or 30 months from the priority date to avoid abandonment.

- | | |
|---|---|
| <input type="checkbox"/> U.S. Basic National Fee. | <input type="checkbox"/> Copy of the international application. |
|---|---|

3. The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- ☐ a. Translation of the application into English. A processing fee will be required if submitted later than the appropriate 20 or 30 months from the priority date.
- ☐ The current translation is defective for the reasons indicated on the attached Notice of Defective Translation.
- ☐ b. Processing fee for providing the translation of the application and/or the Annexes later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(f)).
- ☐ c. Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), properly identifying the application (preferably by the International application number and international filing date). A surcharge will be required if submitted later than the appropriate 20 or 30 months from the priority date.
- ☐ The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) for the reasons indicated on the attached PCT/DO/EO/917.
- ☐ d. Surcharge for providing the oath or declaration later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(e)).

4. Additional claim fees of \$ _____ as a ☐ large entity ☐ small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due (37 CFR 1.492(g)). See attached PTO-875.

5. ☒ Applicant has not submitted the required sequence listing pursuant to 37 CFR 1.821-1.825. See attached PCT/DO/EO/920.

ALL OF THE ITEMS SET FORTH IN 3(a)-3(d), 4 AND 5 ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 22 OR 32 MONTHS (where 37 CFR 1.495 applies) FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

6. If box 3a or 3c is checked, a translation of the Annexes **MUST** be submitted no later than the time period set above or the Annexes will be cancelled. A processing fee will be required if submitted later than 20 or 30 months from the priority date.

7. ☐ The Article 19 amendments are cancelled since a translation was not provided by the appropriate 20 (37 CFR 1.494(d)) or 30 (37 CFR 1.495(d)) months from the priority date.

Applicant is reminded that any communication to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above. (37 CFR 1.5)

A copy of this notice MUST be returned with this response.

Enclosed: ☐ PCT/DO/EO/917 ☐ Notice of Defective Translation
☐ PTO-875 ☒ PCT/DO/EO/920

Deborah D. Williams

FORM PCT/DO/EO/905 (March 2001)

Telephone: 703-305-3744

RECEIVED

JUN 13 2001

ANNEITE CROMER

BEST AVAILABLE COPY



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents, Box PCT
United States Patent and Trademark Office
Washington, D.C. 20231
www.uspto.gov

U.S. APPLICATION NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
09/674368	METCALF	T 33377-00

ALAN M GORDON
PATENT LAW DEPARTMENT 2B
AMERICAN HOME PRODUCTS CORPORATION
ONE CAMPUS DRIVE
PARSIPPANY, NJ 07054

INTERNATIONAL APPLICATION NO.

PCT/US99/09486

I.A. FILING DATE

PRIORITY DATE

29 APR 99

DATE MAILED:

11 JUN 2001

**NOTIFICATION TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS
CONTAINING NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE
DISCLOSURES**

Applicant has submitted papers under 35 U.S.C. 371 to enter the national stage in the United States of America. The items indicated below, however, are missing. The period within which to correct the deficiency noted below and avoid abandonment is set forth in the accompanying Notification.

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CFR 1.821-1.825 for the following reason(s):

- ☐ The application fails to comply with the requirements of 37 CFR 1.821-1.825.
- ☐ This application does not contain, a "Sequence Listing" as a separate part of the disclosure on paper copy or compact disc, as required by 37 CFR 1.821(c).
- ☐ A copy of the "Sequence Listing" in computer readable format has not been submitted as required by 37 CFR 1.821(e).
- ☐ A copy of the "Sequence Listing" in computer readable form has been submitted. The content of the computer readable form, however, does not comply with the requirements of 37 CFR 1.822 and/or 1.832, as indicated on the attached marked-up copy of the "Raw Sequence Listing."
- ☒ The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A substitute computer readable form must be submitted as required by 37 CFR 1.825(d).
- ☐ The paper copy or compact disc of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CFR 1.821(e).
- ☐ Other: _____

APPLICANT MUST PROVIDE:

- ☒ An initial or substitute computer readable form (CRF) of the "Sequence Listing."
- ☐ An initial or substitute paper copy or compact disc of the "Sequence Listing," as well as an amendment directing its entry into the specification.
- ☒ A statement that the contents of the paper or compact disc and the computer readable form are the same and, where applicable, include no new matter, as required by 37 CFR 1.821(e), 1.821(f), 1.821(g), 1.825(b) or 1.825(d).

FOR QUESTIONS REGARDING COMPLIANCE WITH THESE REQUIREMENTS, PLEASE
CALL:

(703) 308-4216, for Rules interpretation,
(703) 308-4212, for CRF submission help,
(703) 287-0200, for PatentIn software help.

Deborah D. Williams

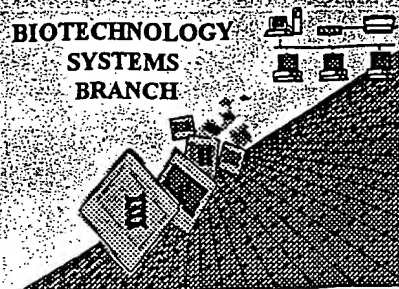
FORM PCT/DO/EO/920 (March 2001)

Telephone: 703-305-3744

BEST AVAILABLE COPY

RAW SEQUENCE LISTING ERROR REPORT

BIOTECHNOLOGY
SYSTEMS
BRANCH



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number:

09/674,368

Source:

PCT/09

Date Processed by STIC:

3/07/2001

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER
VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND
TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 - 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:

<http://www.uspto.gov/web/offices/pac/checker>

Raw Sequence Listing Error Summary

ERROR DETECTED SUGGESTED CORRECTION

SERIAL NUMBER: 09/674,368

ATTENTION: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 ☒ W Wrapped Nucleics The number/text at the end of each line "wrapped" down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 2 ☐ W Wrapped Aminos The amino acid number/text at the end of each line "wrapped" down to the next line.
This may occur if your file was retrieved in a word processor after creating it.
Please adjust your right margin to .3, as this will prevent "wrapping".
- 3 ☐ I Incorrect Line Length The rules require that a line not exceed 72 characters in length. This includes spaces.
- 4 ☐ M Misaligned Amino Acid Numbering The numbering under each 5th amino acid is misaligned. This may be caused by the use of tabs between the numbering. It is recommended to delete any tabs and use spacing between the numbers.
- 5 ☒ N Non-ASCII This file was not saved in ASCII (DOS) text, as required by the Sequence Rules.
Please ensure your subsequent submission is saved in ASCII text so that it can be processed.
- 6 ☐ V Variable Length Sequence(s) contain n's or Xaa's which represented more than one residue.
As per the rules, each n or Xaa can only represent a single residue.
Please present the maximum number of each residue having variable length and indicate in the (ix) feature section that some may be missing.
- 7 ☐ P PatentIn ver. 2.0 "bug" A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequence(s) . Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies primarily to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 8 ☐ S Skipped Sequences (OLD RULES) Sequence(s) missing. If intentional, please use the following format for each skipped sequence:
(2) INFORMATION FOR SEQ ID NO:X:
(i) SEQUENCE CHARACTERISTICS:(Do not insert any headings under "SEQUENCE CHARACTERISTICS")
(xi) SEQUENCE DESCRIPTION:SEQ ID NO:X:
This sequence is intentionally skipped

Please also adjust the "(iii) NUMBER OF SEQUENCES:" response to include the skipped sequence(s).
- 9 ☐ S Skipped Sequences (NEW RULES) Sequence(s) missing. If intentional, please use the following format for each skipped sequence.
<210> sequence id number
<400> sequence id number
000
- 10 ☐ U Use of n's or Xaa's (NEW RULES) Use of n's and/or Xaa's have been detected in the Sequence Listing.
Use of <220> to <223> is MANDATORY if n's or Xaa's are present.
In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 11 ☐ U Use of <213>Organism (NEW RULES) Sequence(s) are missing this mandatory field or its response.
- 12 ☐ U Use of <220>Feature (NEW RULES) Sequence(s) are missing the <220>Feature and associated headings.
Use of <220> to <223> is MANDATORY if <213>ORGANISM is "Artificial" or "Unknown"
Please explain source of genetic material in <220> to <223> section.
(See "Federal Register," 6/01/98, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of new, Rul
- 13 ☒ P PatentIn ver. 2.0 "bug" Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing).
Instead, please use "File Manager" or any other means to copy file to floppy disk.

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/674,368

DATE: 03/07/2001
 TIME: 11:37:48

Does Not Comply
 Corrected Diskette Needed

Input Set : A:\PTO.txt
 Output Set: N:\CRF3\03072001\I674368.raw

5 <110> APPLICANT: American Cyanamid Company
 7 <120> TITLE OF INVENTION: Vaccines Containing Recombinant Pilin Against Neisseria
 9 Gonorrhoeae or Neisseria Meningitidis
 11 <130> FILE REFERENCE: 33377-00/PCT
 13 <140> CURRENT APPLICATION NUMBER: US/09/674,368
 14 <141> CURRENT FILING DATE: 2000-10-27
 16 <160> NUMBER OF SEQ ID NOS: 24
 18 <170> SOFTWARE: PatentIn Ver. 2.0

*see item 5 on Error
 Summary Sheet*

ERRORED SEQUENCES

299 <210> SEQ ID NO: 13
 300 <211> LENGTH: 31
 301 <212> TYPE: DNA
 303 <213> ORGANISM: Neisseria Meningitidis Class I
 305 <400> SEQUENCE: 13
 E--> 306 ccggcgcgtc tctcacggcg aatggcccg c
 307 31
 396 <210> SEQ ID NO: 24
 397 <211> LENGTH: 22
 398 <212> TYPE: PRT
 399 <213> ORGANISM: Neisseria gonorrhoeae
 404 <400> SEQUENCE: 24
 405 Glu Ala Ile Leu Leu Ala Glu Gly Gln Lys Ser Ala Val Thr Glu Tyr
 406 1 5 10 15
 408 Tyr Leu Asn His Gly Lys
 410 20
 E--> 441 1
 E--> 443 8
 445 ACY-33377-00

*move up - format error
 (see item 1 on
 Error Summary
 Sheet)*

delete at end of file

see following pages for more errors

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/674,368

DATE: 03/07/2001

TIME: 11:37:50

Input Set : A:\PTO.txt

Output Set: N:\CRF3\03072001\I674368.raw

L:13 M:270 C: Current Application Number differs, Replaced Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:60 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:64 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:68 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:72 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:76 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:80 M:336 W: Invalid Amino Acid Number in Coding Region, SEQ ID:1
L:87 M:258 W: Mandatory Feature missing, <220> FEATURE:
L:87 M:258 W: Mandatory Feature missing, <223> OTHER INFORMATION:
L:194 M:258 W: Mandatory Feature missing, <220> FEATURE:
L:194 M:258 W: Mandatory Feature missing, <223> OTHER INFORMATION:
L:306 M:254 E: No. of Bases conflict, LENGTH:Input:0 Counted:31 SEQ:13
L:441 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:24
M:332 Repeated in SeqNo=24

4

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/674,368

DATE: 03/14/2001
TIME: 12:10:34

Input Set : A:\Pto.amc
Output Set : N:\CRF3\03142001\I674368.raw

```

142      1              5              10              15
144 atc gcc atc gtc ggt atc ttg gca gcc gtc gcc ctg ccc gca tac caa 96
145 Ile Ala Ile Val Gly Ile Leu Ala Ala Val Ala Leu Pro Ala Tyr Gln
146              20              25              30
148 gac tac acc gcg cgc gcc caa atg tcc gaa gcc ctg act ttg gca gaa 144
149 Asp Tyr Thr Ala Arg Ala Gln Met Ser Glu Ala Leu Thr Leu Ala Glu
150              35              40              45
152 ggt caa aaa tcc gca gtg atc gag tat tat tcc gac aac ggc aca ttc 192
153 Gly Gln Lys Ser Ala Val Ile Glu Tyr Tyr Ser Asp Asn Gly Thr Phe
154              50              55              60
156 ccg aac agc aat act tcc gca ggt att gct gcc tct aac gag att aaa 240
157 Pro Asn Ser Asn Thr Ser Ala Gly Ile Ala Ala Ser Asn Glu Ile Lys
158 65              70              75              80
160 ggt aag tat gtg gca tcg gtt aag gtt gaa ggt aat gcc tct gtt gct 288
161 Gly Lys Tyr Val Ala Ser Val Lys Val Glu Gly Asn Ala Ser Val Ala
162              85              90              95
164 tct att acc gct acc atg aac tct agt aat gtg aat aag gac atc aaa 336
165 Ser Ile Thr Ala Thr Met Asn Ser Ser Asn Val Asn Lys Asp Ile Lys
166              100              105              110
169 ggt aaa acc ttg gta ctc gtc ggc aaa caa aac tcc ggt tcg gta aaa 384
170 Gly Lys Thr Leu Val Leu Val Gly Lys Gln Asn Ser Gly Ser Val Lys
171              115              120              125
173 tgg ttc tgc gga cag ccg gtt acg cgc gac aac gcc gac aac gac gac 432
174 Trp Phe Cys Gly Gln Pro Val Thr Arg Asp Asn Ala Asp Asn Asp Asp
175              130              135              140
177 gtc aaa gac gcc ggc aac aac ggc atc gaa acc aag cac ctg ccg tca 480
178 Val Lys Asp Ala Gly Asn Asn Gly Ile Glu Thr Lys His Leu Pro Ser
179 145              150              155              160
181 acc tgc cgc gat acg tca tct gat gcc aaa 510
182 Thr Cys Arg Asp Thr Ser Ser Asp Ala Lys
183              165              170

```

186 <210> SEQ ID NO: 4
187 <211> LENGTH: 170
188 <212> TYPE: PRT
189 <213> ORGANISM: Artificial Sequence

W--> 191 <220> FEATURE:
W--> 191 <223> OTHER INFORMATION:
191 <400> SEQUENCE: 4

```

192 Met Glu Ala Ile Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile Val
193      1              5              10              15
195 Ile Ala Ile Val Gly Ile Leu Ala Ala Val Ala Leu Pro Ala Tyr Gln
196              20              25              30
198 Asp Tyr Thr Ala Arg Ala Gln Met Ser Glu Ala Leu Thr Leu Ala Glu
199              35              40              45
201 Gly Gln Lys Ser Ala Val Ile Glu Tyr Tyr Ser Asp Asn Gly Thr Phe
202              50              55              60
204 Pro Asn Ser Asn Thr Ser Ala Gly Ile Ala Ala Ser Asn Glu Ile Lys
205 65              70              75              80
207 Gly Lys Tyr Val Ala Ser Val Lys Val Glu Gly Asn Ala Ser Val Ala

```

→ same env - see item 13
on Env
Summary Sheet

3

RAW SEQUENCE LISTING

DATE: 03/14/2001

PATENT APPLICATION: US/09/674,368

TIME: 12:10:34

Input Set : A:\Pto.amc

Output Set: N:\CRF3\03142001\I674368.raw

71 gcc aag acc gcc gac aac atc aac acc aag cac ctg ccg tca acc tgc 480

72 Ala Lys Thr Ala Asp Asn Ile Asn Thr Lys His Leu Pro Ser Thr Cys

73 145 150 155 160

75 cgc gac gca agt gat gcc agc taa

504

76 Arg Asp Ala Ser Asp Ala Ser

77 165

79 <210> SEQ ID NO: 2

80 <211> LENGTH: 167

81 <212> TYPE: PRT

82 <213> ORGANISM: Artificial Sequence

W--> 84 <220> FEATURE:

W--> 84 <223> OTHER INFORMATION:

84 <400> SEQUENCE: 2

85 Met Asp Thr Leu Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile Val

86 1 5 10 15

88 Ile Ala Ile Val Gly Ile Leu Ala Ala Val Ala Leu Pro Ala Tyr Gln

89 20 25 30

92 Asp Tyr Thr Ala Arg Ala Gln Val Ser Glu Ala Ile Leu Ala Glu

93 35 40 45

96 Gly Gln Lys Ser Ala Val Thr Glu Tyr Tyr Leu Asn His Gly Glu Trp

97 50 55 60

100 Pro Gly Asn Asn Thr Ser Ala Gly Val Ala Ser Ser Ser Thr Ile Lys

101 65 70 75 80

104 Gly Lys Tyr Val Lys Glu Val Thr Val Ala Asn Gly Val Ile Thr Ala

105 85 90 95

108 Thr Met Leu Ser Ser Gly Val Asn Lys Glu Ile Gln Gly Lys Lys Leu

109 100 105 110

112 Ser Leu Trp Ala Lys Arg Gln Asp Gly Ser Val Lys Trp Phe Cys Gly

113 115 120 125

115 Gln Pro Val Thr Arg Thr Asp Ala Lys Ala Asp Thr Val Ala Ala Ala

116 130 135 140

118 Ala Lys Thr Ala Asp Asn Ile Asn Thr Lys His Leu Pro Ser Thr Cys

119 145 150 155 160

121 Arg Asp Ala Ser Asp Ala Ser

122 165

125 <210> SEQ ID NO: 3

126 <211> LENGTH: 510

127 <212> TYPE: DNA

128 <213> ORGANISM: Artificial Sequence

130 <220> FEATURE:

131 <223> OTHER INFORMATION: Description of Artificial Sequence: Chimeric of

132 Neisseria Meningitidis Class II and Neisseria

133 Gonorrhoeae

135 <220> FEATURE:

136 <221> NAME/KEY: CDS

137 <222> LOCATION: (1)..(510)

139 <400> SEQUENCE: 3

140 atg gaa gca atc caa aaa ggt ttc acc ctg atc gag ctg atg atc gtc 48

141 Met Glu Ala Ile Gln Lys Gly Phe Thr Leu Ile Glu Leu Met Ile Val

see item 13 on
Error
Summary
Sheet

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☒ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.